Grant Application
to the Federal Communication Commission
Rural Health Care Pilot Program
(WC Docket No. 02-60)

Applicant: The West Virginia Telehealth Alliance, Inc.

500 Corporate Centre Drive, Suite 510
Scott Depot, WV 25560

West Virginia Telehealth Alliance

500 Corporate Centre Drive, Suite 510, Scott Depot, WV 25560

May 3, 2007

The Honorable Kevin J. Martin
Chairman
Federal Communications Commission
236 Massachusetts Avenue, NE, Suite 110
Washington, DC 20002

Re: Grant Application of West Virginia Telehealth Alliance, Inc. for funding under the Federal Communications Commission's Rural Health Care Pilot Program
(WC Docket No. 02-60)

Dear Chairman Martin:

Provided is the formal application of the West Virginia Telehealth Alliance, Inc. for funding under the Federal Communications Commission's Rural Health Care Pilot Program. The West Virginia Telehealth Alliance is a statewide organization comprising health care providers, hospitals, rural health clinics, physicians, business groups, labor organizations, universities, government agencies and telecommunication companies. Additional bipartisan support for this application is being provided from Governor Joe Manchin III, key administration officials and the state's congressional delegation.

Collectively, the West Virginia Telehealth Alliance has developed a bold plan for the advancement of telehealth adoption and telemedicine utilization in West Virginia, particularly in areas that are rural and medically underserved and face significant rural economic and demographic obstacles. Greater use of a dedicated network of advanced telecommunication and information infrastructure is vital to enabling rural health care centers in our state to access and leverage telehealth applications, information systems and educational resources.

As you will read, this application, developed on behalf of the entire state of West Virginia, focuses on these key areas:

1) improving connectivity for rural health centers, with an emphasis on regions of the state with historically high concentrations of individuals who are disadvantaged, elderly and suffer from a wide variety of chronic medical conditions;
2) undertaking a complete health network analysis project;
3) providing for advanced connectivity to key regional rural health centers *so* they can serve as telehealth hubs for applications such as tele-stroke centers; and,

4) establishing Internet2 connectivity among the major teaching health care centers in the state.

Approval of this grant application by the FCC would help to propel West Virginia's ongoing efforts at improving connectivity and establishing interoperability of a statewide rural health network, and lay a firm foundation for broader health information exchange under the initiative established by the West Virginia Health Information Network. The benefits of this will be long-lasting and broad, not only for enhancing the capabilities of West Virginia's health care delivery and teaching system, but also in improving the health of many rural West Virginian children and adults.

I respectfully request the Commission's approval of this application from the state **of** West Virginia, and **I** look forward to having the West Virginia Telehealth Alliance, Inc. among those applicants who will be provided grant funds to help build a dedicated rural health broadband network, enabling the wider **use** of telehealth services to improve the health and well-being of our rural citizens.

As provided in the instructions, we are filing this application electronically and by direct delivery by overnight carrier. Also in compliance with the instructions, we are providing courtesy copies to: **1)** Erika Olsen, **(202) 418-2868.** erika.olsen@fcc.gov; **2)** Thomas Buckley, **(202) 418-0725,** thomas.buckley@fcc.gov; and **3)** Jeremy Marcus, **(202) 41**8-0059, jeremy.marcus@fcc.gov. These copies have been sent to each at the address indicated in the instructions: Telecommunications Access Policy Division, Wireline Competition Bureau, Federal Communications Commission, **445** 12th Street, SW, Washington, DC **20554.**

Please contact me at **(304) 545-3052** if you have any questions or if any additional information is needed. Please have someone on your staff confirm receipt of our application.

Sincerely,

Lawrence J Malone
Chairman
West Virginia Telehealth Alliance, Inc.

Grant Application to the Federal Communication Commission

Applicant: The West Virginia Telehealth Alliance, Inc.

Name *of Applicant: West Virginia Telehealth Alliance, Inc.*

***Mailing Address:* c/o *500 Corporate Centre Drive, Suite* 510, *Scott Depot,* WV 25560**

***Contact person: Lawrence* J. *Malone, Chairman* of WVTA,**

***Malone Consulting Services* (304) 545-3052**

Email: lmalone@malonecs.com

1. ***Organization that will be legally and financially responsible for the conduct of activities supported by the fund:***

The West Virginia Telehealth Alliance, Inc., has been chartered as a West Virginia tax-exempt, non-profit corporation and will be the applicant for the grant funds. The Alliance will be legally and financially responsible for the activities supported by the grant funds and wili administer the grant dollars. The Alliance is a member-controlled entity and has been chartered to represent the consortium of eligible member health care organizations, meeting the requirements outlined in the guidance to the Rural Pilot Program FAQ. The Alliance will receive member contributions and other grant dollars to cover administrative costs to assure that the FCC grant funds are used only for eligible program costs. These allocations as projected are shown in the budget documents set forth in Attachment 2.

2. The goals and objectives of the network:

The goal of the West Virginia Telehealth Alliance is to coordinate, integrate and facilitate the utilization of advanced technology applications, including advanced telecommunications and information services, telemedicine and secured exchange of electronic health information to improve the health of the citizens of West Virginia, to improve access to care in rural areas of the state, to better coordinate care among providers and to afford an appropriate continuum of options for interconnecting West Virginia's health care infrastructure and delivery system. To accomplish this goal, the participants in the Alliance have developed a comprehensive Strategic Plan (referred to as the "Plan" attached as Attachment 1) that will serve as a guide for the various activities that will be necessary to achieve the potential for telehealth applications to transform the health care delivery system in West Virginia.

The Plan sets forth the goals and objectives of the Alliance in more detail. The Plan:

- Provides a framework for expansion and further development of the state's telehealth infrastructure. It is a guide for future action to integrate resources and activities related to telehealth in West Virginia, including technological, design and implementation aspects of an integrated telehealth network and the governance and management of this network that will address the emerging telehealth needs of West Virginia.

- Addresses prevailing barriers to utilization of telehealth applications for many health care providers: (1) access to, and cost of advanced telecommunications technology, including broadband connections of sufficient bandwidth for effective utilization of telehealth applications: (2) cost of telehealth equipment and maintenance, and (3) access to, and cost of technical assistance. The Plan provides a means for health care end-users and subscribers to acquire telecommunications connectivity, digital equipment, services, and technical assistance through a state-wide purchasing collaborative. In many cases, these types of services and this equipment would be cost-prohibitive if purchased or leased individually without the purchasing power of this state-wide organization.

- Also addresses technical barriers to connecting disparate health care providers by providing a framework for participants *to* agree upon common specifications, standardization and operating procedures to ensure interoperability of telehealth applications throughout West Virginia. It provides for the development and build-out of a dedicated telecommunications infrastructure *to* support a diverse array of telehealth applications, including appropriate responses to homeland security threats and natural disasters.

- Permits the West Virginia Telehealth Alliance to becoming a self-sustaining collaborative organization through shared resources, grant funds and state and local support and through member fees and contributions.

As noted in the Plan, West Virginia is the second most rural state in the country, with 45 of the state's 55 counties designated as "rural" and more than 60% of the population lives in areas meeting the Census Bureau definition of rural. About two-thirds of the population resides in communities of fewer than 2,500 persons and more than 80% of West Virginia's population living in communities of fewer than 5,000 people. The rural nature of West Virginia provides a number of challenges that the telehealth project (for which these FCC funds are requested) will address:

- A large majority of the state's residential areas are designated as Health Professional Shortage Areas (HSPAs) or (and) Medically Underserved Areas (MUAs). There are medically underserved areas in 50 of the 55 counties, and all or part of 40 counties are designated health professional shortage areas.

- The average population density for the state is 75.1 persons per square mile; however, most of the state's population is concentrated in a few urban areas.

- Twenty-three of the fifty-five counties have fewer than 45 residents per square mile. Only half of the roads are paved and more than 60% of the paved highways are rated fair, poor, or very poor for cross-section (width of lanes and shoulders and number of lanes) or alignment (grades and curves). National studies confirm that poor road conditions are associated with longer driving times to reach medical care.

- Access to care is a challenge in rural areas. Only five West Virginia counties have an urban transportation system, while 17 have a rural transportation system. Four counties have a network of transportation services provided by social services. Thirty-one counties in West Virginia have limited or no public transportation systems at all.

- The population of the state is aging. The total population of West Virginia is projected to grow 2% between 2000 and 2020, while the population 65 and over of the state is projected to grow 49% over that same time period.

- The shortage of physicians in West Virginia's sparsely populated rural areas is severe. The state ranks about 30th nationally in the ratio of physicians to population. There are a disproportionately low number of physician specialists in rural areas; only about 10% of medical specialists practice in rural areas, compared with about 25% of family and general practice physicians. (State Health Plan) West Virginia also has fewer nurse practitioners, dentists and dental hygienists per 100,000 population than the U.S. average. (NCSL Workforce Profile, West Virginia 2001)

- Fewer West Virginian adults reported having routine physical exams within the past two years than the U.S. average. Only a third of the state's adults with an annual family income under $15,000 visited a dentist in the previous year. (Source: NCSL, Workforce Profile, West Virginia 2001)

- There are 66 acute care, critical access, government, rehabilitation or long-term acute care hospitals in West Virginia, 32 of which are located in rural areas (North Carolina Rural Health Research and Policy Analysis Center, 2006). There are 19 counties that do not have a community hospital. The state has a large network of primary care centers (also known as "community health centers"). There are 34 nonprofit primary care centers, with 139 primary care service sites (including 34 school-based health centers), providing services in or to 42 counties.

- West Virginia also has four psychiatric hospitals, 14 behavioral health centers, and 65 certified intermediate care facilities for the mentally retarded (ICF-MR). There are a total of 145 licensed behavioral health facilities, 106 licensed commercial nursing homes statewide, 65 licensed personal care homes, 54 local health departments, 73 home health agencies and 20 hospice organizations providing services in West Virginia.

- As of 2006, there were 3,743 MDs and 507 DOs active and practicing in West Virginia.. Approximately one-third of West Virginia's physicians are self-employed in a solo practice. More than one-third of West Virginia's physicians provide primary care.

- Much of this health care infrastructure is located in rural areas of the state with limited broadband connectivity and utilization of telehealth applications *to* integrate and coordinate services is hampered by lack of service and the cost of connectivity.

The health status of West Virginia is one of the most compelling reasons for this telehealth initiative. In a number of studies, West Virginia ranks near the top of adverse health outcomes and the prevalence of chronic conditions. A number of studies have shown that, of the adult population in West Virginia:

- 64% are obese or overweight;
- 32.4% have high blood pressure (with another 28% at-risk with pre-hypertension);
- 37.5% have high cholesterol;
- 28.2% are current smokers;
- 8.8% have diabetes (and another 3% are undiagnosed diabetics) and 40% are prediabetic;
- 24.7% of individuals with a chronic medical condition also suffer from depression or other behavioral conditions;
- more than 35% of West Virginia adults reported getting no physical activity within the last month and nearly 70% of West Virginians are classified as sedentary; and
- 85% have one or more risk factors for chronic disease.

These conditions have serious consequences for the affected individuals, their families and employers and place a drain upon the health care delivery system:

- One in every five dollars billed for hospital care in West Virginia is related *to* diabetes.
- According to one study, one-third of West Virginians are at risk of developing diabetes during their lifetime.
- Eight of every ten hospital discharges in West Virginia is related to cardiovascular disease. (Source: Bureau for Public Health, Burden *of* Cardiovascular Disease in West Virginia)
- About 90% of middle-aged West Virginians will develop high blood pressure in their lifetime, and nearly 70% of those who have it now do not have it under control.
- Alarmingly, nearly 85,000 of the state's students are overweight or at-risk of becoming overweight. Overweight adolescents have a 70% chance of becoming overweight or obese adults. One in three children born in 2000 is at risk of developing diabetes due to physical inactivity and diet if current trends continue.
- Asthma affects almost 100,000 West Virginians with a total direct medical cost of $43 million. Twenty percent of the people with asthma account for 80% of the health care cost associated with the disease. The annual cost of care for these at-risk asthma patients was $2,584.00 compared *to* $410.00 for other asthma patients.

According *to* the West Virginia Health Care Authority, there were nearly 4 million hospital outpatient encounters and almost 1 million emergency room visits in 2005 (nearly twice the national average per capita). The National Ambulatory Medical Care Survey indicates that the average number of physician encounters is 3.4 per person, with 1.3 of these being primary care visits. Applying these ratios to West Virginia, there were over **6** million physician encounters last year and over 2 million of these were for primary care services. The West Virginia Primary Care Association reports that 292,849 patients were served by Federally Qualified Health Centers (Primary Care Centers) in West Virginia during 2005. The Kaiser Foundation indicates that total health care spending in West Virginia exceeded $10 billion in 2005. With this volume of health care transactions in West Virginia, there is great potential for the utilization of telehealth applications to improve health outcomes.

A large number of underinsured and underserved citizens continue to reside in several rural areas throughout West Virginia. Increased access to preventive, primary, and specialty care for citizens in these underserved areas through telehealth applications will permit timely care to avoid many of the deadly and costly complications of unmanaged or undetected chronic or serious illnesses.

Several studies have shown that access to these types of services can reduce the inappropriate use of emergency rooms for routine care and avoidable hospitalizations (resulting in higher health care costs for all through cost-shifting) and promote healthier students and workers, thereby enhancing the potential for economic development and growth in these often economically depressed areas,

There is also a need for better coordinated emergency preparedness and response. In light of emergent public health threats related to bioterrorism and homeland security, influenza pandemics, and natural disasters, our citizens expect responses to emergencies to be rapid, timely and effective, even in remote or rural areas.

The principal goal of the telehealth network, as set forth in the Strategic Plan, is focused on improving the health of West Virginians. The Plan seeks to promote and encourage the effective linkage of the health care resources identified above and in the Strategic Plan to overcome the challenges identified to promote:

- The further development of a statewide telehealth network infrastructure to enhance healthcare delivery with priority emphasis placed on rural medically underserved regions using telehealth/telemedicine technologies.

- Increased access to health care and supporting services while containing or decreasing healthcare costs.

- The dissemination of relevant information, training, and technical assistance to healthcare organizations and providers to assist them with the adoption, deployment and utilization of new and emerging telehealth technologies for patient treatment and care coordination.

- Increased use of distance learning in public health and medical care.

- Access to training for healthcare workers, medical professionals, and patient education in rural and medically underserved areas.

- Connection of the telehealth network to facilitate interfaces with regional and national telehealth initiatives.

The three educational institutions that have associated Medical or Osteopathic programs, Marshall University, West Virginia University and the West Virginia School of Osteopathic Medicine, have active programs for distributed education and research utilizing broadband technologies. West Virginia University is currently the only institution in the state with Internet2 access and is only available in Northern West Virginia. Marshall University utilizes Metropolitan Ethernet contracts from a variety of vendors including Verizon, FiberNet and nTelos. OARnet, the networking division of the Ohio Supercomputer Center, will

serve as the Internet2 network partner of Marshall University. OARNet is completing a southern loop between Athens and Portsmouth, Ohio via Huntington, West Virginia. This connection is within several blocks of the Marshall University Huntington campus and provides us an opportunity to integrate the Marshall and other health related networks in Southern West Virginia at high bandwidths in a cost effective and sustainable manner.

Funds from the FCC grant (or alternative source) will also permit integration of the facilities of various disparate hospital and healthcare networks with Marshall University and other academic health care organizations and Internet2 via OARNet. Metro Ethernet connections will be established between Verizon, nTelos and FiberNet facilities and a direct fiber facility will be built to the OARNet Point of Presence for Marshall in Huntington. This will provide both Internet2 and National Lambda Rail interconnectivity as well as improved integration of existing networks to any participating healthcare partner.

Another goal of this project is to create a premier integrated clinical network that will enhance research, education, and economic development and will expand West Virginia's role and reputation in networking technology combined with our national reputation in rural health. This network design with provide both intrastate and interstate research and education capabilities that go far beyond the capabilities of even Internet2.

All partners will expand the delivery of interactive educational programming, such as grand rounds and continuing medical education, clinical information systems, library services, and consultation. Beneficiaries will be students, residents, health care professionals and, above all, the patients served by the institutions and facilities connected to this Internet2 system.

3. ***Estimate of the network's total costs for each year:***

The total estimate cost of the networks operations is set forth in the Budget which is included as Attachment 2. This budget reflects the aggregate costs of eligible and non-eligible costs based upon the guidance to the FCC grant program and the FAQ's listed on the FCC website. The requested funding from the FCC grant will be used to pay 85% of the costs incurred to deploy the dedicated statewide broadband health care network, including the cost of initial network design studies; transmission facilities; recurring and non-recurring costs of advanced telecommunications and information services, such as connection to the public Internet; and costs of connecting the network to Internet2 or National LambdaRail but only for the eligible costs for eligible entities as set forth under the FCC pilot program guidance. The Network will fund the remaining costs of 15% of the eligible costs, as well as all of the non-eligible costs and administrative costs of the project.

4. Allocation of network costs for non-eligible (for-profit) network participants:

Network costs will be allocated based upon a direct and indirect cost formula. Direct costs will be identified based upon billing information from communication carriers. In the event direct costs cannot be determined from such billing information, direct costs will be allocated based upon units of usage or broadband capacity allocated to the participating entity. Indirect costs, including administrative costs and non-eligible costs under the FCC grant program will be allocated based upon proportionate ratios of direct costs. Non-eligible participants will be billed for direct and indirect costs under this allocation formula. Eligible participants will also be billed for the remaining direct cost after application of FCC grant funds which are applied to subsidize eligible cost during the grant period, along with the allocated share of indirect cost.

As set forth in the FCC Pilot program guidance, eligible entities for purposes of this allocation formula includes public and not-for-profit health care providers (consistent with the definition of "Health Care Provider" in Section 254(h)(7)(B) of the Communications Act and the FCC's rules for the existing Rural Health Care program for Universal Service Fund purposes). Eligible health care providers include:

- Post-secondary educational institutions offering health care instruction, teaching hospitals, or medical schools:
- Community health centers or health centers providing health care to migrants;
- Local health departments or agencies including dedicated emergency departments of rural for-profit hospitals;
- Community mental health centers:
- Not-for-profit hospitals;
- Rural health clinics, including mobile clinics;
- Consortia of health care providers consisting of one or more of the above entities

Non-eligible health care providers listed in the FCC Frequently Answered Question guidance include any for-profit institutions (except as otherwise permitted under the FCC pilot program guidance), or any health care provider types not listed above. Examples of non-eligible providers include:

- Private physician offices or clinics;
- Nursing homes or other long-term care facilities (e.g. assisted living facilities);
- Residential substance abuse treatment facilities:
- Hospices;
- Emergency medical service facilities (e.g., rescue squads, ambulance services);
- For-profit hospitals;
- Home health agencies;

- Blood banks:
- Social service agencies; and
- Community centers, vocational rehabilitation centers, youth centers.

There are over 200 eligible entities participating in this project with almost 600 eligible clinical sites. Of the eligible entities, there are 50 public and non-profit hospitals operating 160 affiliated clinical sites, three participating medical schools operating 16 affiliated clinical sites, 34 community health center organizations operating 139 clinical sites, 54 health departments operating 54 clinical sites, 15 community mental health centers operating nearly 100 clinical sites and 64 rural health clinics operating 70 clinical sites. These eligible sites collectively provide a critical source of access to health care for nearly 1 million West Virginians with over 3 million health care encounters per year. Over 60% of these sites provide services in, or to residents of, rural areas of the state. The initial participants in the project have expressed a commitment to participate and it is anticipated that the participants and the costs as projected in the budget will permit the project to become self-sustaining at the end of the FCC grant funding 24 months after commencement of the project. There are nearly 1300 health care facilities in West Virginia that could participate and another 4,000 physicians that could participate as well. It is projected that 80% of the initial participants over the first three years of operations will be eligible public and non-profit facilities meeting the definitions of the FCC Pilot project guidelines. Costs have been projected in the budget based upon current prevailing and historical cost information gathered by pre-application surveys, from obtain rate information from vendors and from information available from the West Virginia Public Service Commission.

5. Source of financial support and anticipated revenues that will pay for costs not covered by the FCC grant:

Member contributions and grant funds other than the FCC grant will pay for the cost of administration and other non-eligible costs under the FCC grant. See the budget detail for an allocation of these costs and the source of funds to pay for these costs. The network will also make application for operating funds from one or more foundations simultaneously with the filing of this request for funds from the FCC and will seek funding from several state programs supporting technology and infrastructure development, including programs operated by the West Virginia Health Care Authority, the West Virginia Department of Health and Human Resources and the West Virginia Development Office. This project will also be coordinated with certain programs providing funding for Homeland Security readiness.

6. List of health care facilities that will be included in the network:

The list of participants and the requested information is provided in Attachment 3.

7. The address, zip code, Rural Urban Commuting Area (RUCA) code and phone number for each health care facility participating in the network:

The list of participants and the requested information is provided in Attachment 3.

8. Previous experience in developing and managing telemedicine programs:

The experience of the participants in the Alliance in conducting telehealth programs is detailed in the Strategic Plan which is attached. The management of the Alliance will be elected by the participants and each member of the management team will have the requisite experience in developing and managing telemedicine programs based upon historic operational experience as detailed in the Strategic Plan.

The organizing chairman and designated contact on this project is Larry Malone. Mr. Malone is owner of Malone Consulting Services (www.malonecs.com), a leading specialty communications firm based in Charleston, West Virginia. Mr. Malone has more than 20 years experience in all facets of communications, public affairs, marketing and digital services. His background includes serving as a corporate communications manager, a public relations agency executive, a state trade association leader, an elected city official and a technology entrepreneur. Malone has worked with project teams in Boston, Houston, St. Louis, San Francisco and throughout the Mid-Atlantic region.

Since April 2004, Mr. Malone has served as Chairman of the West Virginia Broadband Connectivity Working Group - a joint study project of the West Virginia Chamber of Commerce and Vision Shared. He also serves as project manager of the West Virginia Small Business Technology Education & Competitiveness Initiative, is a member of the Affiliate Leadership Council of the West Virginia High Technology Consortium Foundation and is a member of the West Virginia e-Health Initiative.

The Strategic Plan adopted by the Alliance members addresses the development and deployment of advanced communication and information connectivity, organizational management, coordination of telehealth initiatives and technical issues surrounding state-wide utilization of existing and emerging telehealth applications in West Virginia. The Strategic Plan will be reviewed, adapted and modified periodically as new circumstances are presented and new opportunities are created that require a change in the Plan goals, objectives, and tasks.

The Plan builds upon the work of several organizations, including a group chartered by Vision Shared and the West Virginia Chamber of Commerce, with support by the Benedum Foundation, promoting greater deployment and utilization of high-speed broadband connectivity and advanced communications and information infrastructure development; the work of the West Virginia Health

Information Network; a state-wide group that was formed to develop infrastructure for health information exchange and to encourage more rapid adoption and use of interoperable electronic health information systems; and various health care organizations, legislative committees, governmental agencies, and academic institutions promoting the use of telehealth applications for health improvement and coordination..

The work of many of these groups in West Virginia complements and coincides with similar efforts across the country that have identified a number of areas of great promise for telehealth applications in increasing timely and effective access to care and better health outcomes through better coordination and integration of health care resources; however, the full potential for health improvement and for providing a more effective continuum of care by means of establishing a state-wide telehealth infrastructure has yet to be realized in West Virginia. Within West Virginia, many public and private medical organizations, teaching hospitals, and community organizations have used telehealth applications to provide primary care, and to effectively diagnose, treat, and monitor patients with a wide-range of medical conditions and diseases. The Plan builds upon the lessons learned and the successes of these organizations and to harness the power of this technology, through coordinated application, to transform the health of West Virginia.

9. Project management plan outlining the project's leadership and management structure, as well as its work plan, schedule, and budget:

The project management plan is set forth in the Strategic Plan attached. The initial participants in the Alliance have adopted the following steps for implementation of this plan:

1. Establish the West Virginia Telehealth Alliance, Inc. (WVTA) as a 501(c)(3) tax-exempt nonprofit West Virginia corporation to implement and coordinate the activities contemplated by this Strategic Plan:

    - WVTA will have two sub-groups, one focused on infrastructure development and technical standards and one focused on telehealth applications and utilization. A board of participants will govern the organization and activities of WVTA will be coordinated with the West Virginia Health Information Network.

2. Utilize existing telecommunications infrastructure to connect major participants (hubs) and then to connect rural participants on a regional basis, starting in southern West Virginia and then proceeding north and east to affect a phased integration and coordination of advanced communication and information infrastructure that supports telehealth applications.

- Coordinate the existing activities of MDTV, CAMC, Marshall University, the School of Osteopathic Medicine, the participating members of the West Virginia Hospital Association and the Community Health Network of West Virginia, the West Virginia Primary Care Association, First Choice network and participating community mental health centers, free clinics, local health departments, state-operated facilities and other health care providers through a dedicated network utilizing a scalable high-speed broadband infrastructure. Identify gaps in service and access as part of a review of services during the first 12 months of operation.

3. Develop the WVTA as a self-sustaining organization promoting a flexible, scalable, secure, and cost-effective network infrastructure capable of electronically linking all communities through telehealth applications within West Virginia.

   - WVTA is seeking funding under the FCC Pilot Initiative and from state appropriations, private foundations and other sources to supplement member contributions and assessments to complete the initial build-out, deployment and enhancement of the network, including the requisite studies of gaps in the system and the cost of connecting participants to high-speed services and will recruit a sufficient number of participants to assure that WVTA is self-sustaining after the expiration of such grant or FCC funds

4. Provide rural hospitals, clinics, medical practices, mental health, and social services providers the technical assistance to effectively utilize appropriate telehealth applications and, at least annually, convene a meeting of participants and interested parties to exchange telehealth best-practices; to coordinate and enhance greater utilization of telehealth applications; and make any necessary modifications to this plan.

   - WVTA will develop recommendations for state and federal sources of funding to help reduce the barriers to entry for those who seek to participate in the telehealth network.

These activities will be coordinated with those of the West Virginia Health Information Network and will continue while receipt of the grant funds is pending. The coordination of activities will continue over the next 36 months while each of the component elements identified in the Strategic Plan is linked electronically through the network.

The WVTA will measure successful progress toward the implementation of the Strategic Plan by using the following benchmarks and outcome measures:

Outcomes	Performance measures
1. Sustained coordination and collaboration among telehealth users	# of participating telehealth sites and # of patients served through telehealth applications; demonstration of impact on health outcomes and avoided hospitalization over time 24-36 months post implementation
2. Advancement of telehealth education/training	# of health care providers or other clinicians trained using telehealth or distance learning through network linkages and # of educational programs available through network telehealth resources
3. Collaborate on securing additional funds to advance telehealth systems and use in West Virginia	% of funding increase over 2006 baseline for telehealth services and increase from baseline year in services available and # of participants through network telehealth applications

The project plan will proceed with the following activities and mileposts:

Phase/Activity	Start Date	End Date
1. Convene stakeholders and ti t: quarterly with at least one annual workshop focused on telehealth coordination and expansion	5/1/07	Continuing
2. Establish and organize WTHA as 501(c)(3)	5/1/07	12/31/07
3. Establish web-site clearinghouse for telehealth activities	7/1/07	12/31/07
4. Evaluate telehealth network and planning for expansion	7/1/07	Continuing
5. Connection of hubs and interconnection of telehealth infrastructure as contemplated in strategic plan and FCC grant application	7/1/07	Continuing
6 Offer health improvement. education and training programs via telehealth network	5/1/07	Continuing

10. Coordination of the telemedicine/telehealth program throughout West Virginia:

These activities are spelled out in detail in the Strategic Plan. The coordination is based upon interconnection of the various components and participants in the somewhat fragmented system of telehealth applications that currently exist. This interconnection requires enhancement of the current communication and health information infrastructure. The timeline and budget for these activities are provided in the Strategic Plan and the attachments to this application.

11. Plan for sustaining network operations:

The plan for sustaining network operation is spelled out in the response to number 9 above and the Strategic Plan that is attached. As noted above, the Strategic Plan provides that the WVTA will mature into a self-sustaining organization promoting a flexible, scalable, secure, and cost-effective network infrastructure capable of electronically linking all communities through telehealth applications within West Virginia. The FCC funds will be used to launch the Alliance. It is seeking funding under the FCC Pilot Initiative and from state appropriations, private foundations and other sources to supplement member contributions and assessments to complete the initial build-out, deployment and enhancement of the network, including the requisite studies of gaps in the system and the cost of connecting participants to high-speed services and will recruit a sufficient number of participants to assure that WVTA is self-sustaining after the expiration of such grant or FCC funds. The financial plan is set forth in the Budget that is attached as Attachment 2.

12. Waiver requests:

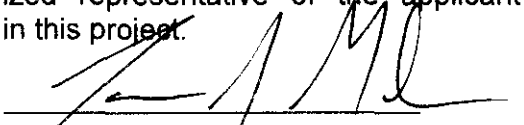
In its publicized Frequently Asked Questions (FAQ) document concerning this pilot program, the FCC stated that, "The FCC recognizes that some of these requirements may need to be waived to implement this pilot program. Accordingly, applicants should identify in their application any rules that they would like the FCC to waive for purposes of this pilot program."

The West Virginia Telehealth Alliance requests the ability to waive the competitive bidding process for certain physical locations and areas. The FCC has dictated that grantees find the most efficient and cost effective means of connecting existing networks and providers. Physical locations and the current facilities in place by the local telecommunications providers will dictate the ability to leverage existing technology and networks. There may be construction projects – some of which are listed in this grant application – that will allow for the interconnection of already existing networks. Many of the existing major hospitals and post-secondary educational health care institutions within the state of West Virginia have already deployed MPLS/Metro Ethernet networks utilizing specific vendors. It will not be feasible to vary or alter the telecommunications vendors that intended to interconnect these projects. (See Attachment **4** for a discussion about MPLS interconnection) Since the West Virginia Telehealth Alliance is also incorporating Internet2 connectivity, there are a limited number of physical connections – or "Gigapops" in close proximity to existing West Virginia facilities. Again, it may be necessary due to physical limitations to use a specific telecommunications vendor. In these scenarios, it will be unrealistic and not cost effective to competitively bid out construction projects and connectivity options. Therefore, we would request the ability to sole-source telecommunications projects in certain situations.

It may also be necessary in some cases to award advanced telecommunications segments to specific vendors to ensure proper interconnection and interoperability amongst already established networks as well. For instance, the West Virginia Telehealth Alliance envisions the ability to interconnect with the proposed West Virginia Statewide MPLS network (See Appendix **B)** as the state controlled critical access hospitals and clinics that wish to participate in the Alliance will have their broadband needs provided by the Statewide MPLS network. Depending upon the relative technology abilities and the willingness of the various telecommunications providers to operate under necessary interconnection agreements, it may be necessary to award these segments and telecommunications components to specific vendors.

The FCC pilot program has stated that it will allow for the funding of up to **85%** of the costs of constructing an advanced region-wide broadband network to provide telehealth and telemedicine services including initial network design studies and transmission facilities. There may be construction projects – some of which are listed in this grant application – that will allow for the interconnection of already existing networks. However, it will not be financially viable to finance **100%** of the construction costs while waiting on USAC re-imbursement on larger, specific construction projects. The various telecommunications entities will not build out the specific connections without an up-front outlay of capital. Therefore, the West Virginia Telehealth Alliance also requests an alteration in the normal USAC process of only reimbursing telecommunications services until after those services have been delivered and requests the ability to receive a pre-allocation of all or a portion of the funding required for specific construction projects.

The undersigned hereby submits this application on behalf of the applicant as the duly authorized representative of the applicant designated by the eligible participants in this project.

Signature: 

Lawrence J. Malone, Chairman and Incorporator
of the West Virginia Telehealth Alliance, Inc.

Attachment 1

West Virginia Telehealth Alliance Strategic Plan

The West Virginia Telehealth Alliance Strategic Plan

Improving the Health of West Virginia Through Telehealth Applications and Advanced Communication and Information Technology

May 2007

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Improving the Health of West Virginia through Telehealth Applications and Advanced Communication and Information Technology

Introduction

This Strategic Plan is meant to serve as a guide for the collaborative and collective efforts of those engaged in the utilization of telehealth services within West Virginia. The purpose of this Strategic Plan is to improve the health and well-being of the citizens of West Virginia through development and utilization of advanced telecommunications and information technology infrastructure to permit more effective and efficient deployment of telehealth and health information applications. **A** related goal is to increase access to health care services and to better coordinate care of the citizens of West Virginia, particularly those living in rural and/or medically underserved areas, through these enhanced and expanded telehealth applications.

The Plan addresses many of the challenges facing West Virginia health care providers and affected parties in using telehealth applications more effectively or efficiently today:.

- It provides a framework for expansion and further development of the state's telehealth infrastructure. It is a guide for future action to integrate resources and activities related to telehealth in West Virginia, including technological, design and implementation aspects of an integrated telehealth network and the governance and management of this network that will address the emerging telehealth needs of West Virginia.

- It addresses prevailing barriers to utilization of telehealth applications for many health care providers: (1) access to, and cost of advanced telecommunications technology, including broadband connections of sufficient bandwidth for effective utilization of telehealth applications; *(2)* cost of telehealth equipment and maintenance, and (3) access to, and cost of technical assistance. The Plan provides a means for health care end-users and subscribers to acquire telecommunications connectivity, digital equipment, services, and technical assistance through a state-wide purchasing collaborative. In many cases, these types of services and this equipment would be cost-prohibitive if purchased or leased individually without the purchasing power of this state-wide organization.

- The plan will address technical barriers to connecting disparate health care providers by providing a framework for participants to agree upon common specifications, standardization and operating procedures to ensure interoperability of telehealth applications throughout West Virginia. It provides for the development and build-out of a dedicated

telecommunications infrastructure to support a diverse array of telehealth applications, including appropriate responses to homeland security threats and natural disasters.

- The Plan will permit the West Virginia Telehealth Alliance to becoming a self-sustaining collaborative organization through shared resources, grant funds and state and local support and through member fees and contributions.

This Strategic Plan addresses the development and deployment of advanced communication and information connectivity, organizational management, coordination of telehealth initiatives and technical issues surrounding state-wide utilization of existing and emerging telehealth applications in West Virginia. It identifies some current and planned telehealth applications for purposes of illustration but an exhaustive list of these applications is beyond the scope of this Plan; this Plan recognizes that the development and deployment of these applications, and the organizations involved in these activities, is a dynamic and ever-changing process and this Plan is intended to be a flexible roadmap to promote the greatest practical implementation and utilization of telehealth services to meet the stated health improvement objectives of the participants in the Alliance. Accordingly, this Strategic Pian will be reviewed, adapted and modified periodically as new circumstances are presented and new opportunities are created that require a change in the Plan goals, objectives, and tasks.

This Plan builds upon the work of several workgroups, including those of a group chartered by Vision Shared and the West Virginia Chamber of Commerce, with support by the Benedum Foundation, promoting greater deployment and utilization of high-speed broadband connectivity and advanced communications and information infrastructure development; the work of the West Virginia Health Information Network; a state-wide workgroup that was formed to prepare a grant application in response to a Federal Communication Commission pilot program aimed at encouraging greater utilization of advanced communication and information services for telehealth applications, particularly those serving rural and medically-underserved areas; and various health care organizations, legislative committees, governmental agencies, and academic institutions.

The work *of* many *of* these groups in West Virginia complements and coincides with similar efforts across the country that have identified a number of areas of great promise for telehealth applications in increasing timely and effective access to care and better health outcomes through better coordination and integration of health care resources; however, the full potential for health improvement and for providing a more effective continuum of care by means of establishing a state-wide telehealth infrastructure has yet to be realized in West Virginia. Telemedicine applications throughout this country and the world have proven to produce better health outcomes and to be cost-effective. Within West Virginia, many public and private medical organizations, teaching hospitals, and

community organizations have used telehealth applications to provide primary care, and to effectively diagnose, treat, and monitor patients with a wide-range of medical conditions and diseases. This Plan is intended *to* build upon the lessons learned and the successes of these organizations and to harness the power of this technology, through coordinated application, to transform the health of West Virginia.

For purposes of this plan, telehealth and telemedicine will be defined using the terms used in the FCC Order announcing the rural pilot initiative. As set forth in that Order, "telehealth" included a broad set of applications using communications technologies *to* support long-distance clinical care, consumer and professional health-related education, public health, health administration, research, and electronic health records while "telemedicine" means the provision of medical care from a distance using telecommunications technology. See: FCC WC Docket No. 02-60, September 29, 2006, footnote 2. Telehealth encompasses a broader definition of remote healthcare that does not always involve clinical services. Telehealth services include a range of health care, health education, and public health related services facilitated by the use of video conferencing, imaging and other communications technologies or health information exchange. Typically, telemedicine consults utilize television monitors and computer screens *to* transmit visual and audio information of or about a patient from originating to remote sites.

Likewise, for purposes of this plan, advanced communication and information services will have the same meaning as assigned in the FCC Order, meaning "high-speed, switched, broadband telecommunications capability that enables users *to* originate and receive high-quality voice, data, graphics, and video telecommunications using any technology. See: FCC WC Docket No. 02-60, September 29, 2006, footnote 9.

Improving the Health of West Virginia through Telehealth Applications and Advanced Communication and Information Technology

Statement of Need:

Geography should not dictate the health of a community; however, physical barriers *to* healthcare greatly impact the health status and the quality of life for many citizens residing in rural areas *of* West Virginia. Overcoming the challenges of geography and distance *to* provide our citizens access to the full range of available healthcare services and medical expertise dictates a more concerted effort to electronically link patients from all areas of the state to the healthcare delivery system as part of this telehealth initiative.

Health Care Delivery in **a rural state:** West Virginia covers 24,078 square miles, with a 2005 estimated population of 1,816,856 people. It is the second most rural state in the country, with 45 of the state's 55 counties designated as "rural". Eighty percent of the state is forested with over 110,000 square miles of hardwood forest Nearly two-thirds (64%) of West Virginians live in rural areas, with more than eighty percent of the state's 1.8 million residents living in communities of fewer than 5,000 peopie. The average population density for the state is 75.1 persons per square mile: however, most of the state's population is concentrated in **a** few urban areas. One sixth of the entire population of the state lives in Kanawha and Cabell counties and nearly 40 percent of the population lives in seven counties. Conversely, twenty-three of the fifty-five counties have fewer than 45 residents per square mile.

According to the Economic Research Service, the average per-capita income for all West Virginia residents in 2004 was $25,792, although rural per-capita income lagged at $23,208. Estimates from 2003 indicate a poverty rate of 18.6% exists in rural West Virginia, compared to **14.4%** in urban areas of the state. 2000 data reports 28.9% of the rural population has not completed high school, while 21.3% of the urban population lacks a high school diploma. The unemployment rate in rural West Virginia is 5.4%, while in urban West Virginia, it is 4.7% (USDA-ERS, 2005).

Unusually large percentages (compared to the rest of the country) of the people residing in these rural areas of West Virginia are either elderly or are between 50 and 65 years of age. All except four of the state's 55 counties are designated fully or in part as Health Professional Shortage Areas and/or Medically Underserved Areas (source, unless noted otherwise for the statistics in this section is the West Virginia State Health Plan and related supporting research documents).